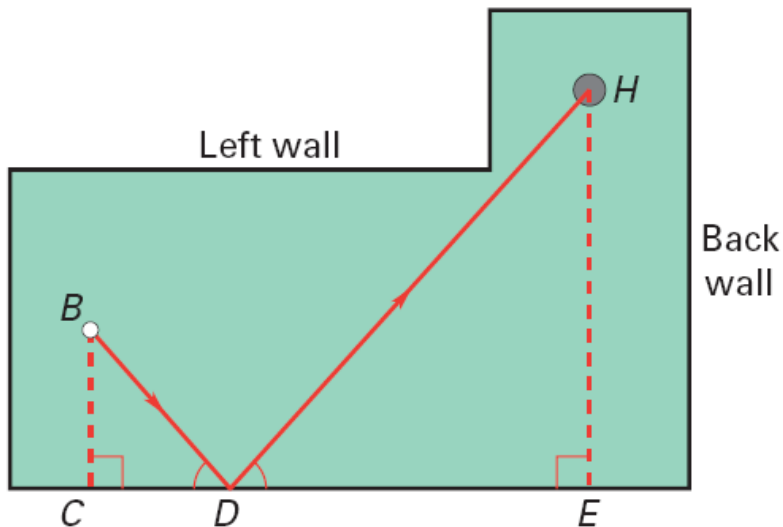


Geometry 8.4 Notes: Similar Triangles (pp 480-482)

You can use similar triangles when playing miniature golf. In the diagram below, a golf ball putted from point B hits a wall at D and travels into the hole at H . By physics, the angles that the path of the ball makes with the wall are always congruent. The challenge for the golfer is in putting the ball so that it hits the wall at the correct point.



A. Two similar right triangles are shown in the diagram. Name the triangles and any pairs of congruent angles. Write the statement of proportionality for the triangles.

B. Trace the diagram except for the path. Draw a path for the ball to reach the hole in one putt by hitting the *back* wall instead of the right wall.



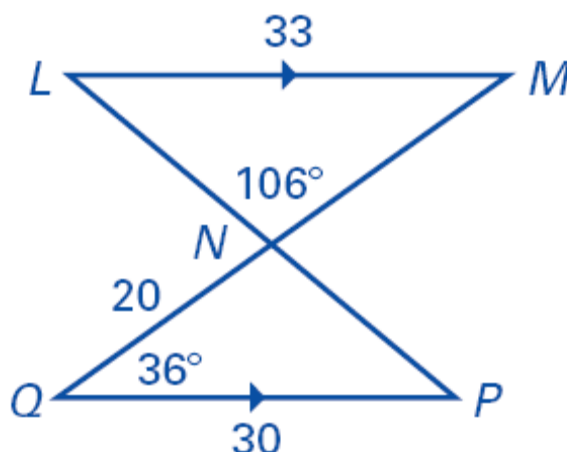
Geometry 8.4 Notes: Similar Triangles (pp 480-482)

Examples: In the diagram, $\triangle LMN \sim \triangle PQN$.

1. Write the statement of proportionality.

2. Find $\angle M$ & $\angle P$

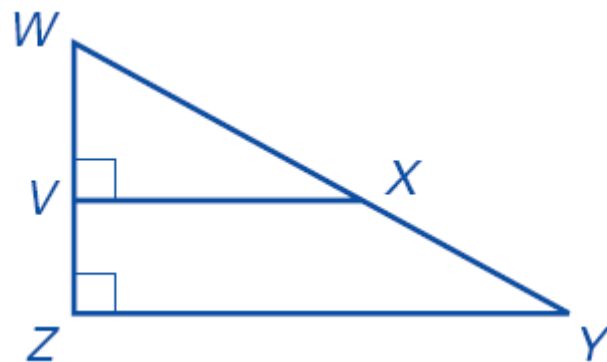
3. Find MN & QM.



AA Similarity Postulate

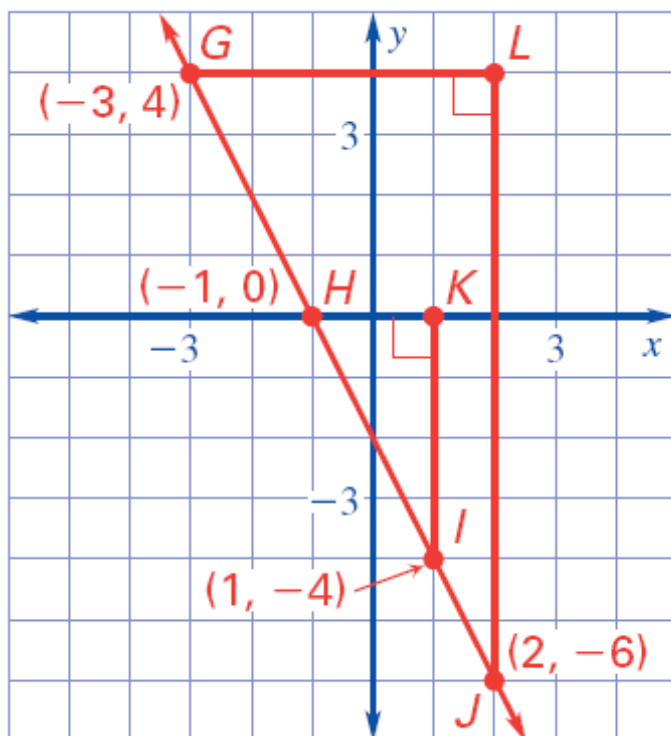
Examples.

4. Explain why $\triangle WXV \sim \triangle WZY$.



Geometry 8.4 Notes: Similar Triangles (pp 480-482)

5. Use points G and J in the diagram to find the slope of the line containing \overline{GJ} . Name five other segments whose endpoints could be used to find the slope of the line.

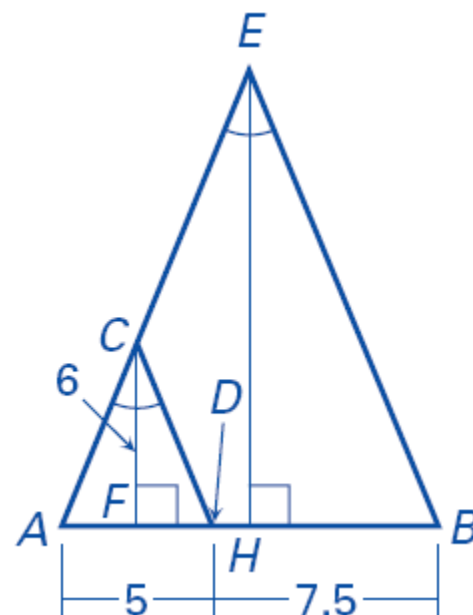


6. **Guided Practice:** In example 1 on the previous page, how do you know that the triangles are similar?

Examples.

7. In a camera, $f = 10$ cm and $n = 6$ cm. Use the proportion $\frac{f}{h} = \frac{n}{g}$ to estimate the altitude h in meters required to take a photo that covers a ground distance g of 100 meters.

8. Find EH.



Geometry 8.4 Notes: Similar Triangles (pp 480-482)

Guided Practice.

The company logo shown uses equilateral triangles and inscribed and circumscribed circles.

9. If the scale factor between the two triangles is 5:2, how long is a side of the smaller equilateral triangle?

10. In a larger version of the logo, the smaller triangle has a side length of 4.5 cm. How long is a side of the larger triangle?



11. Explain how the AA similarity Postulate can save time when proving that two triangles are similar.

12. If $\triangle ABC \sim \triangle XYZ$, $AB = 6$ & $XY = 4$, what is the *scale factor* of the triangles?

13. The points $A(2, 3)$, $B(-1, 6)$, $C(4, 1)$, and $D(0, 5)$ lie on a line. Which two points could be used to calculate the slope of the line? Explain.

14. Can you assume that corresponding sides and corresponding angles of any two similar triangles are congruent?